



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/510,538	05/27/2005	Andrew James Goodwin	MSP617NAT2	2274

27305 7590 01/28/2008  
HOWARD & HOWARD ATTORNEYS, P.C.  
THE PINEHURST OFFICE CENTER, SUITE #101  
39400 WOODWARD AVENUE  
BLOOMFIELD HILLS, MI 48304-5151

EXAMINER
----------

ZIMMER, MARC S

ART UNIT	PAPER NUMBER
----------	--------------

1796

MAIL DATE	DELIVERY MODE
-----------	---------------

01/28/2008

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

Application No.

10/510,538

Applicant(s)

GOODWIN ET AL.

Examiner

Marc S. Zimmer

Art Unit

1796

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 26 December 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1,2,5-10,14-17 and 19 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,2,5-8 and 14-17 is/are rejected.
- 7) ☒ Claim(s) 9,10 and 19 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-2, 5-8, and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over the article entitled "Plasma Spray Synthesis of Nanomaterial Powders and Deposits" authored by Karthikeyen et al. and published in *Material Science and Engineering* (1997), pg 275-286 in view of Bessho, JP 11-198281 (hereinafter '281) and/or JP 11-256338 (hereinafter '338) for the reasons originally outlined in the March 2, 2007 correspondence.

Claims 15-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over "Plasma Spray Synthesis of Nanomaterial Powders and Deposits" authored by Karthikeyen et al. and published in *Material Science and Engineering* (1997), pg 275-286 and Bessho, JP 11-198281 (hereinafter '281) and/or Bessho, JP 11-256338 (hereinafter '338) as applied to claims 1-8 and 11-17 above, and further in view of O'Reilly et al., WO 2002/35576 for the reasons originally outlined in the March 2, 2007 correspondence.

Applicant continues to assert that one of ordinary skill would not have been motivated to replace the high temperature plasma taught in *Karthikeyen et al.* with the low temperature plasma taught by *Bessho*, as has been suggested by the Examiner,

insofar as, were a dilute solution of the precursor to be introduced into a low temperature plasma per the teachings of *Bessho* instead of the high temperature plasma disclosed by *Karthikeyen et al.*, the problems associated with incomplete evaporation of the solvent first discussed in their August 9, 2007 correspondence would only be exacerbated.

The Examiner replied by saying that, if the high-temperature plasma were replaced with a low-temperature plasma, the skilled artisan would introduce the precursor sample into the plasma in a form devoid of solvent, or neat, as is done in the *Bessho*. However, it is Applicant's contention that it is an essential aspect of the invention to *Karthikeyen et al.* that the precursor be introduced as a solution so as to provide droplets of the proper average size and size distribution. To support this notion, they point to the disclosure under the heading, "Specimen Preparation and Characterization" where it is said that the concentration of the liquid feedstock is among the system parameters that may be manipulated to optimize droplet size distribution. The Examiner acknowledges that liquid feedstock concentration is mentioned but is in no way convinced that this is an absolutely critical feature of the invention. On page 278 and still under the aforementioned heading, is provided a table wherein various process parameters that are exploited to optimize droplet size distribution are identified. Notably, liquid feed concentration is not among the parameters summarized in that table. Moreover, there are a sufficiently large number of parameters listed that manipulating liquid feedstock concentration is perhaps not an important consideration at all. In any case, Applicant has definitely not proven that the dilution of the precursor in a

solvent is critical to realizing the particle size distribution needed to prepare nanomaterial powders per the teachings of *Karthikeyen et al.*

If dilution of the precursor in a solvent is not, in fact, a critical component of the invention, as the Examiner believes is the case, then the skilled practitioner need not be concerned with its effects when substituting a low temperature plasma for a high temperature plasma and, thus, would have a reasonable expectation of success.

Claims 9, 10, and 19 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

This Application is based on an RCE of Application No. 10/510,538. All claims are drawn to the same invention claimed in the earlier application and could have been finally rejected on the grounds and art of record in the next Office action if they had been entered in the earlier application. (The claims have not been modified in any meaningful way other than to insert the limitations of claim 4 into claim 1 to overcome a separate rejection. Given that claim 4 had already been rejected over *Karthikeyen et al.* in view of *Bessho*, the issues under consideration are the same.) Accordingly, **THIS ACTION IS MADE FINAL** even though it is a first action in this case. See MPEP § 706.07(b). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no, however, event will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Marc S. Zimmer whose telephone number is 571-272-1096. The examiner can normally be reached on Monday-Friday 8:30-5:00.

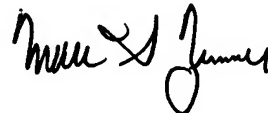
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jim Seidleck can be reached on 571-272-1078. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Application/Control Number:  
10/510,538  
Art Unit: 1796

Page 6

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

January 23, 2008



MARC S. ZIMMER  
PRIMARY EXAMINER